**3GPP TSG-CT WG1 Meeting #131-eC1-21xxxx**

**E-meeting, 19-27 August 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3426** | **rev** | **-** | **Current version:** | **17.3.1** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Introducing the Remote UE report procedure | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe | | | | |  | ***Date:*** | | | 2021-07-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) ... Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The NAS protocol for both the UE and the network shall support the Remote UE report procedure, as specified in stage-2 spec TS 23.304 for 5G ProSe, clause 6.5.1.1. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introducing the Remote UE report procedure in NAS protocol. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No possibility to report Remote UEs to the network and misalignment with stage-2 spec exists. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.2, 6.6.x (new), 6.6.x.1 (new), 6.6.x.2 (new), 6.6.x.3 (new), 6.6.x.4 (new), 6.6.x.5 (new), 8.3.AA (new), 8.3.AA.1 (new), 8.3.AA.2 (new), 8.3.AA.3 (new), 8.3.BB (new), 8.3.BB.1 (new), 9.7, 9.11.4.CC (new). 10.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\*\*\* First change \*\*\*\*\*

### 6.1.2 Types of 5GSM procedures

Three types of 5GSM procedures can be distinguished:

a) Procedures related to PDU sessions:

These procedures are initiated by the network and are used for authentication and authorization or manipulation of PDU sessions:

1) PDU authentication and authorization;

2) network-requested PDU session modification; and

3) network-requested PDU session release.

This procedure is initiated by the UE and to request for establishment of PDU sessions or to perform handover of an existing PDU session between 3GPP access and non-3GPP access, or to transfer an existing PDN connection in the EPS to the 5GS:

UE-requested PDU session establishment.

b) Transaction related procedures:

These procedures are initiated by the UE to request for handling of PDU sessions, i.e. to modify a PDU session, or to release a PDU session:

1) UE-requested PDU session modification; and

2) UE-requested PDU session release.

This procedure is initiated by the 5G ProSe UE-to-network relay and is used for the manipulation of PDU sessions:

- remote UE report.

A successful transaction related procedure initiated by the UE triggers the network to execute one of the following procedures related to PDU session; network-requested PDU session modification procedure or network-requested PDU session release procedure. The UE treats the start of the procedure related to the PDU session as completion of the transaction related procedure.

c) Common procedure:

The following 5GSM procedure can be related to a PDU session or to a procedure transaction:

5GSM status procedure.

\*\*\*\*\* Next change \*\*\*\*\*

### 6.6.x Remote UE report procedure

#### 6.6.x.1 General

The purpose of the 5G ProSe remote UE report procedure is for a UE acting as 5G ProSe layer 3 UE-to-network relay to notify the network that a 5G ProSe remote UE is connected to the 5G ProSe layer 3 UE-to-network relay or disconnected from the 5G ProSe layer 3 UE-to-network relay as specified in 3GPP TS 23.304 [6E].

#### 6.6.x.2 Remote UE report procedure initiation

In order to initiate the 5G ProSe remote UE report procedure, the UE shall create a REMOTE UE REPORT message.

The UE shall include information of newly connected or disconnected 5G ProSe remote UEs to the network in the REMOTE UE REPORT message by setting the values of the Remote UE context connected IE or the Remote UE context disconnected IE to the 5G ProSe remote UE identities that are being connected or disconnected, respectively.

Editor's note: It is FFS what are the types of 5G ProSe remote UE identities that can be included in the REMOTE UE REPORT message as this is waiting for stage-2 definitions.

The UE shall set the PDU session ID IE to the value of the PDU session associated with the 5G ProSe remote UE connected to the 5G ProSe layer 3 UE-to-network relay or disconnected from the 5G ProSe layer 3 UE-to-network relay.

The UE shall allocate a PTI value currently not used and shall set the PTI IE of the REMOTE UE REPORT message to the allocated PTI value.

The UE shall transport the REMOTE UE REPORT message and the PDU session ID, using the NAS transport procedure as specified in subclause 5.4.5, and the UE shall start timer T35xx (see example in figure 6.6.x.2.1).



Figure 6.6.x.2.1: Remote UE report procedure

#### 6.6.x.3 Remote UE report procedure accepted by the network

Upon receipt of the REMOTE UE REPORT message, the SMF shall send a REMOTE UE REPORT RESPONSE message to the UE. The SMF shall include the PTI from the REMOTE UE REPORT message.

Upon receipt of the REMOTE UE REPORT RESPONSE message, the UE shall stop timer T35xx and enter the state PROCEDURE TRANSACTION INACTIVE.

#### 6.6.x.4 Abnormal cases in the UE

The following abnormal cases can be identified:

a) Expiry of timer T35xx:

On the first expiry of the timer T35xx, the UE shall resend the REMOTE UE REPORT message and shall reset and restart timer T35xx. This retransmission is repeated two times, i.e. on the third expiry of timer T35xx, the UE shall abort the procedure and release any resources for this procedure.

NOTE: After the abortion of the remote UE report procedure, the remote UE report procedure for the 5G ProSe remote UE(s) can be restarted and how to restart the procedure is left to UE implementation.

#### 6.6.x.5 Abnormal cases on the network side

No abnormal cases have been identified.

\*\*\*\*\* Next change \*\*\*\*\*

### 8.3.AA Remote UE report

#### 8.3.AA.1 Message definition

The REMOTE UE REPORT message is sent by the UE to the network to report connection or disconnection of 5G ProSe remote UE(s). See table 8.3.AA.1.

Message type: REMOTE UE REPORT

Significance: dual

Direction: UE to network

Table 8.3.AA.1: REMOTE UE REPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | Remote UE report message identity | Message type  9.7 | M | V | 1 |
| PP | Remote UE context connected | Remote UE context list IE  9.11.4.CC | O | TLV-E | 16-65538 |
| QQ | Remote UE context disconnected | Remote UE context list IE  9.11.4.CC | O | TLV-E | 16-65538 |

#### 8.3.AA.2 Remote UE context connected

This IE is included in the message by the UE acting as 5G ProSe layer 3 UE-to-network relay to provide the network with newly connected 5G ProSe remote UE information as specified in 3GPP TS 23.304 [6E].

#### 8.3.AA.3 Remote UE context disconnected

This IE is included in the message by the UE acting as 5G ProSe layer 3 UE-to-network relay to provide the network with disconnected 5G ProSe remote UE information as specified in 3GPP TS 23.304 [6E].

### 8.3.BB Remote UE report response

#### 8.3.BB.1 Message definition

The REMOTE UE REPORT RESPONSE message is sent by the network to the UE to acknowledge receipt of a remote UE report message. See table 8.3.BB.1.

Message type: REMOTE UE REPORT RESPONSE

Significance: dual

Direction: network to UE

Table 8.3.BB.1: REMOTE UE REPORT RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | Remote UE report response message identity | Message type  9.7 | M | V | 1 |

\*\*\*\*\* Next change \*\*\*\*\*

## 9.7 Message type

The Message type IE and its use are defined in 3GPP TS 24.007 [11]. Tables 9.7.1 and 9.7.2 define the value part of the message type IE used in the 5GS mobility management protocol and 5GS session management protocol.

Table 9.7.1: Message types for 5GS mobility management

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | | | | | | | | | |  | |  | |
| 8 | | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | |  | |  | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 0 | | 1 | | - | | - | | - | | - | | - | | - | |  | | 5GS mobility management messages | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1 | |  | | Registration request | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 0 | | 1 | | 0 | |  | | Registration accept | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 0 | | 1 | | 1 | |  | | Registration complete | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 1 | | 0 | | 0 | |  | | Registration reject | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 1 | | 0 | | 1 | |  | | Deregistration request (UE originating) | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 1 | | 1 | | 0 | |  | | Deregistration accept (UE originating) | |
| 0 | | 1 | | 0 | | 0 | | 0 | | 1 | | 1 | | 1 | |  | | Deregistration request (UE terminated) | |
| 0 | | 1 | | 0 | | 0 | | 1 | | 0 | | 0 | | 0 | |  | | Deregistration accept (UE terminated) | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 0 | | 1 | | 0 | | 0 | | 1 | | 1 | | 0 | | 0 | |  | | Service request | |
| 0 | | 1 | | 0 | | 0 | | 1 | | 1 | | 0 | | 1 | |  | | Service reject | |
| 0 | | 1 | | 0 | | 0 | | 1 | | 1 | | 1 | | 0 | |  | | Service accept | |
| 0 | | 1 | | 0 | | 0 | | 1 | | 1 | | 1 | | 1 | |  | | Control plane service request | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 0 | | 0 | | 0 | |  | | Network slice-specific authentication command | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 0 | | 0 | | 1 | |  | | Network slice-specific authentication complete | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 0 | | 1 | | 0 | |  | | Network slice-specific authentication result | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 1 | | 0 | | 0 | |  | | Configuration update command | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 1 | | 0 | | 1 | |  | | Configuration update complete | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 1 | | 1 | | 0 | |  | | Authentication request | |
| 0 | | 1 | | 0 | | 1 | | 0 | | 1 | | 1 | | 1 | |  | | Authentication response | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 0 | | 0 | | 0 | |  | | Authentication reject | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 0 | | 0 | | 1 | |  | | Authentication failure | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 0 | | 1 | | 0 | |  | | Authentication result | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 0 | | 1 | | 1 | |  | | Identity request | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 1 | | 0 | | 0 | |  | | Identity response | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 1 | | 0 | | 1 | |  | | Security mode command | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 1 | | 1 | | 0 | |  | | Security mode complete | |
| 0 | | 1 | | 0 | | 1 | | 1 | | 1 | | 1 | | 1 | |  | | Security mode reject | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 0 | | 1 | | 1 | | 0 | | 0 | | 1 | | 0 | | 0 | |  | | 5GMM status | |
| 0 | | 1 | | 1 | | 0 | | 0 | | 1 | | 0 | | 1 | |  | | Notification | |
| 0 | | 1 | | 1 | | 0 | | 0 | | 1 | | 1 | | 0 | |  | | Notification response | |
| 0 | | 1 | | 1 | | 0 | | 0 | | 1 | | 1 | | 1 | |  | | UL NAS transport | |
| 0 | | 1 | | 1 | | 0 | | 1 | | 0 | | 0 | | 0 | |  | | DL NAS transport | |
|  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |

Table 9.7.2: Message types for 5GS session management

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | |  |  |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | - | - | - | - | - | - |  | 5GS session management messages |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |  | PDU session establishment request |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | PDU session establishment accept |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |  | PDU session establishment reject |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |  | PDU session authentication command |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |  | PDU session authentication complete |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |  | PDU session authentication result |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |  | PDU session modification request |
| 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |  | PDU session modification reject |
| 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |  | PDU session modification command |
| 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |  | PDU session modification complete |
| 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |  | PDU session modification command reject |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |  | PDU session release request |
| 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |  | PDU session release reject |
| 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |  | PDU session release command |
| 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |  | PDU session release complete |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |  | 5GSM status |
|  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |  | Remote UE report |
| 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |  | Remote UE report response |
|  |  |  |  |  |  |  |  |  |  |

\*\*\*\*\* Next change \*\*\*\*\*

#### 9.11.4.CC Remote UE context list

The purpose of the Remote UE context list information element is to provide identity and optionally IP address of a 5G ProSe remote UE connected to, or disconnected from, a UE acting as a 5G ProSe layer 3 UE-to-network relay.

The Remote UE context list information element is coded as shown in figure 9.11.4.CC.1, figure 9.11.4.CC.2, table 9.11.4.CC.1 and table 9.11.4.CC.2.

The Remote UE context list is a type 6 information element with a minimum length of 16 octets and a maximum length of 65538 octets.

Editor's note: It is FFS what are the 5G ProSe remote UE identities that can be included in the Remote UE context list. Depending on the conclusion of this topic, the Length of user identity is subject to change.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Remote UE context list IEI | | | | | | | | octet 1 |
| Length of remote UE context list contents | | | | | | | | octet 2 |
| octet 3 |
| Number of remote UE contexts | | | | | | | | octet 4 |
| Remote UE context 1 | | | | | | | | octet 5 |
|  |
| octet a |
| … | | | | | | | | octet a+1\*  octet b\* |
| Remote UE context k | | | | | | | | octet b+1\* |
|  |
| octet c\* |

Figure 9.11.4.CC.1: Remote UE context list

Table 9.11.4.CC.1: Remote UE context list

|  |
| --- |
| Remote UE context (octet 5 etc) |
|  |
| The contents of remote UE context are applicable for one individual UE and are coded as shown in figure 9.11.4.CC.2 and table 9.11.4.CC.2. |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of remote UE context | | | | | | | | octet 5 |
| Number of user identities | | | | | | | | octet 6 |
| Length of user identity 1 | | | | | | | | octet 7 |
| User identity 1 | | | | | | | | octet 8 |
| octet q |
| … | | | | | | | |  |
| Length of user identity v | | | | | | | | octet m\* |
| User identity v | | | | | | | | octet m+1\* |
| Octet j\* |
| Spare | | | | | PDU session type | | | octet j+1\* |
| Address information | | | | | | | | octet j+2\*  octet j+k\* |

Figure 9.11.4.CC.2: Remote UE context

Table 9.11.4.CC.2: Remote UE context list information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| User identity (octet 8 to octet q) | | | | |
|  | | | | |
| The User identity is coded as the 5GS mobile identity described in subclause 9.11.3.4 starting from octet 4 in figures 9.11.3.4.2, 9.11.3.4.3, 9.11.3.4.3a and 9.11.3.4.4. | | | | |
|  | | | | |
| PDU session type (octet j+1, bits 1 to 3)  Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | No IP info |
| 0 | 0 | 1 |  | IPv4 |
| 0 | 1 | 0 |  | IPv6 |
| 1 | 0 | 0 |  | Unstructured |
| 1 | 0 | 1 |  | Ethernet |
| All other values are reserved. | | | | |
|  | | | | |
| Bits 4 to 8 of octet j+1 are spare and shall be coded as zero. | | | | |
|  | | | | |
| If the PDU session type indicates IPv4, the Address information in octet j+2 to octet j+7 contains the IPv4 address and port number. Bit 8 of octet j+2 represents the most significant bit of the IP address and bit 1 of octet j+5 the least significant bit. Bit 8 of octet j+6 represents the most significant bit of the port number and bit 1 of octet j+7 the least significant bit.  If the PDU session type indicates IPv6, the Address information in octet j+2 to octet j+9 contains the /64 IPv6 prefix of a remote UE. Bit 8 of octet j+2 represents the most significant bit of the /64 IPv6 prefix and bit 1 of octet j+9 the least significant bit.  If the PDU session type indicates Ethernet, the Address information in octet j+2 to octet j+7 contains the remote UE MAC address. Bit 8 of octet j+2 represents the most significant bit of the MAC address and bit 1 of octet j+7 the least significant bit.  If the PDU session type indicates Unstructured, the Address information octets are not included.  If the PDU session type indicates No IP info, the Address information octets are not included | | | | |
|  | | | | |

\*\*\*\*\* Next change \*\*\*\*\*

## 10.3 Timers of 5GS session management

Timers of 5GS session management are shown in table 10.3.1 and table 10.3.2.

NOTE: Timer T3396 is defined in 3GPP TS 24.008 [12].

Table 10.3.1: Timers of 5GS session management – UE side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3580  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s | PDU SESSION ACTIVE PENDING | Transmission of PDU SESSION ESTABLISHMENT REQUEST message | PDU SESSION ESTABLISHMENT ACCEPT message received or  PDU SESSION ESTABLISHMENT REJECT message received or  PDU SESSION ESTABLISHMENT REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #22, #28, #65. #67, #69, #90, #91 or #92 | Retransmission of PDU SESSION ESTABLISHMENT REQUEST message |
| T3581  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s | PDU SESSION MODIFICATION PENDING | Transmission of PDU SESSION MODIFICATION REQUEST message | PDU SESSION MODIFICATION COMMAND message with the same PTI is received or PDU SESSION MODIFICATION REJECT message received or  PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #22, #28. #67, #69, or #90 | Retransmission of PDU SESSION MODIFICATION REQUEST message |
| T3582  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s | PDU SESSION INACTIVE PENDING | Transmission of PDU SESSION RELEASE REQUEST message | PDU SESSION RELEASE COMMAND message with the same PTI is received or PDU SESSION RELEASE REJECT message received | Retransmission of PDU SESSION RELEASE REQUEST message |
| T3583 | Default 1 min.  NOTE 2 | PDU SESSION ACTIVE | UE creates or updates a derived QoS rule | UE deletes the derived QoS rule (see subclause 6.2.5.1.4.5) | On 1st expiry: Deletion of the derived QoS rule |
| T3584 | NOTE 3 | PDU SESSION ACTIVE PENDING  PDU SESSION MODIFICATION PENDING  PDU SESSION ACTIVE or PDU SESSION INACTIVE PENDING | PDU SESSION ESTABLISHMENT REJECT, PDU SESSION MODIFICATION REJECT, or PDU SESSION RELEASE COMMAND received with 5GSM cause #67 and with a timer value for T3584  PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #67 and with a timer value for T3584 (see subclause 5.4.5.3.3) | PDU SESSION RELEASE COMMAND (see NOTE 6) or PDU SESSION MODIFICATION COMMAND or PDU SESSION AUTHENTICATION COMMAND or DEREGISTRATION REQUEST with the re-registration type "re-registration required" | None |
| T3585 | NOTE 3 | PDU SESSION ACTIVE PENDING  PDU SESSION MODIFICATION PENDING  PDU SESSION ACTIVE or PDU SESSION INACTIVE PENDING | PDU SESSION ESTABLISHMENT REJECT, PDU SESSION MODIFICATION REJECT, or PDU SESSION RELEASE COMMAND received with 5GSM cause #69 and with a timer value for T3585  PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #69 and with a timer value for T3585(see subclause 5.4.5.3.3) | PDU SESSION RELEASE COMMAND (see NOTE 6) or PDU SESSION MODIFICATION COMMAND or PDU SESSION AUTHENTICATION COMMAND or DEREGISTRATION REQUEST with the re-registration type "re-registration required" | None |
| Back-off timer |  |  | defined in 3GPP TS 24.008 [12] |  |  |
| T35xx  NOTE 4  NOTE 5 | 8s  In WB-N1/CE mode, 16s | PDU SESSION ACTIVE | REMOTE UE REPORT sent | REMOTE UE REPORT RESPONSE received | Retransmission of REMOTE UE REPORT |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: The network may provide the value of this timer applicable to the derived QoS rules of a specific PDU session as RQ timer value in the PDU SESSION ESTABLISHMENT ACCEPT message and PDU SESSION MODIFICATION COMMAND message. The maximum value of the timer is 30 min. If the network indicates a value greater than the maximum value, then the UE shall use the maximum value.  NOTE 3: The value of this timer is provided by the network.  NOTE 4: In NB-N1 mode, then the timer value shall be calculated as described in subclause 4.18.  NOTE 5: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.20).  NOTE 6: If the PDU SESSION RELEASE COMMAND message includes the Back-off timer value IE where the timer value indicates neither zero nor deactivated and the 5GSM cause is not #39, the UE then starts the timer with the value provided in the Back-off timer value IE after stopping the existing timer (see subclause 6.3.3.3). | | | | | |

NOTE 1: The back-off timer is used to describe a logical model of the required UE behaviour. This model does not imply any specific implementation, e.g. as a timer of timestamp.

NOTE 2: Reference to back-off timer in this section can either refer to use of timer T3396 or to use of a different packet system specific timer within the UE. Whether the UE uses T3396 as a back-off timer or it uses different packet system specific timers as back-off timers is left up to UE implementation.

Table 10.3.2: Timers of 5GS session management – SMF side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3590  NOTE 3  NOTE 4 | 15s  In WB-N1/CE mode, 23s | PROCEDURE TRANSACTION PENDING | Transmission of PDU SESSION AUTHENTICATION COMMAND message | PDU SESSION AUTHENTICATION COMPLETE message received | Retransmission of PDU SESSION AUTHENTICATION COMMAND message |
| T3591  NOTE 3  NOTE 4 | 16s  In WB-N1/CE mode, 24s | PDU SESSION MODIFICATION PENDING | Transmission of PDU SESSION MODIFICATION COMMAND message | PDU SESSION MODIFICATION COMPLETE message received or PDU SESSION MODIFICATION COMMAND REJECT message received | Retransmission of PDU SESSION MODIFICATION COMMAND message |
| T3592  NOTE 3  NOTE 4 | 16s  In WB-N1/CE mode, 24s | PDU SESSION INACTIVE PENDING | Transmission of PDU SESSION RELEASE COMMAND message | PDU SESSION RELEASE COMPLETE message received or  N1 SM delivery skipped indication received | Retransmission of PDU SESSION RELEASE COMMAND message |
| T3593  NOTE 3  NOTE 4 | Default  60s  (NOTE 2) | PDU SESSION MODIFICATION PENDING | Reception of PDU SESSION MODIFICATION COMPLETE message for transmitted PDU SESSION MODIFICATION COMMAND message where the PDU SESSION MODIFICATION COMMAND message included 5GSM cause #39 | PDU SESSION RELEASE REQUEST message received | Network-requested PDU session release procedure performed |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: If the PDU Session Address Lifetime value is sent to the UE in the PDU SESSION MODIFICATION COMMAND message then timer T3593 shall be started with the same value, otherwise it shall use a default value.  NOTE 3: In NB-N1 mode, the timer value shall be calculated as described in subclause 4.18.  NOTE 4: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.20). | | | | | |

\*\*\*\*\* End of changes \*\*\*\*\*